

WHAT IS CLAIMED IS:

1. A polynucleotide array comprising:
 - (a) a first set of multiple features each of which has first polynucleotide molecules of at least 400 nucleotides in length; and
 - (b) a second set of features each of which has second polynucleotide molecules of no more than 100 nucleotides in length.
2. A polynucleotide array according to claim 1 wherein the ratio of first set features to second set features is at least 10/1.
3. A polynucleotide array according to claim 1 wherein the ratio of first set features to second set features is at least 20/1.
4. A polynucleotide array according to claim 1 wherein the first polynucleotide molecules are double stranded, and the second polynucleotides are single stranded.
5. A polynucleotide array according to claim 1 wherein the first polynucleotide molecules are from enzymatic processing of one or more longer polynucleotides, and the second polynucleotide molecules are synthetic.
6. A polynucleotide array according to claim 1 wherein the first polynucleotide molecules have a length of at least 500 nucleotides.
7. A polynucleotide array according to claim 1 wherein the first polynucleotide molecules have a length of at least 1000 nucleotides and the second polynucleotides have a length of no more than 80 nucleotides.
8. A polynucleotide array according to claim 6 wherein the lengths of the first and second polynucleotides exclude the lengths of any polynucleotide stilt portions.
9. A polynucleotide array according to claim 1 wherein the array features are arranged in a rectangle with second set features at least at the corners of the rectangle.

10. A polynucleotide array according to claim 1 wherein the array features are arranged in lines with at least some lines having at least two second set features which are spaced apart by at least 70% of the first set features in the same line.
11. A polynucleotide array according to claim 1 wherein at least 70% of a second polynucleotide sequence is not contained within a first polynucleotide sequence.
12. A polynucleotide array according to claim 11 wherein at least 70% of the majority of second polynucleotide sequences is not contained with a first polynucleotide sequence.
13. A polynucleotide array according to claim 1 wherein none of the second polynucleotide sequences is contained within a first polynucleotide.
14. A polynucleotide array according to claim 1 wherein the sequence of a second polynucleotide is contained within a first polynucleotide sequence.
15. A kit comprising:
(a) a polynucleotide array having:
a first set of multiple features each of which has first polynucleotide molecules of at least 400 nucleotides in length;
a second set of features each of which has second polynucleotide molecules of no more than 100 nucleotides in length; and
(b) polynucleotide controls which are, or their complements are, at least 70% complementary to sequences of respective second polynucleotides.
16. A kit according to claim 15 wherein the controls or their compliments are at least 90% complementary to sequences of respective second polynucleotides.
17. A kit according to claim 15 wherein the controls targets are labeled.

18. A kit according to claim 15 wherein the ratio of first set features to second set features is at least 10/1.

19. A kit according to claim 15 wherein the ratio of first set features to second set features is at least 20/1.

20. A kit according to claim 15 additionally comprising instructions to expose the array to a sample and the controls or their complements.

21. A kit according to claim 20 wherein first polynucleotide molecules are double stranded and the second polynucleotide molecules are single stranded.

22. A method of fabricating a polynucleotide array comprising:

- (a) forming a first set of multiple features on a substrate each of which has first polynucleotide molecules of at least 400 nucleotides in length; and
- (b) forming a second set of features on the substrate each of which has second polynucleotide molecules of no more than 100 nucleotides in length.

23. A method according to claim 22 wherein the forming of the first and second sets of features comprises depositing drops containing the first and second polynucleotides onto the substrate.

24. A method according to claim 22 wherein the ratio of first set features to second set features is at least 10/1.

25. A method of fabricating a polynucleotide array comprising:

- (a) forming a first set of multiple features on a substrate each of which has first polynucleotide molecules of at least 400 nucleotides in length;
- (b) forming a second set of features on the substrate each of which has second polynucleotide molecules of no more than 100 nucleotides in length;
the method additionally comprising:
- (c) enzymatically processing polynucleotides to obtain the first polynucleotide molecules; and

(d) synthesizing the second polynucleotide molecules.

26. A method according to ~~claim 25~~ additionally comprising evaluating a yield of the enzymatic processing of step (c) for a failed product sequence which has a yield below a predetermined threshold, and synthesizing at least one second polynucleotide of at least 25 nucleotides in length having a sequence the same as a sequence within the failed sequence.

27. A method according to ~~claim 25~~ wherein a sequence of a second polynucleotide is contained within a first polynucleotide.

28. A method according to ~~claim 22~~ wherein the first polynucleotides are double stranded and the second polynucleotides are single stranded.

29. A method of using a polynucleotide array of claim 1, comprising:
exposing the array to control targets such that ~~the~~ control targets hybridize at least 100 times more efficiently to respective second features than they to any of the first features.

30. A method according to ~~claim 29~~ wherein the array is additionally simultaneously exposed to a sample.

31. A method according to ~~claim 29~~ wherein the control targets are from a kit, or are complements of control polynucleotides from a kit, which kit also contains the array.

32. A method according to ~~claim 30~~ wherein respective second set features hybridize more efficiently with control targets than any of the first set features hybridize to any control targets.

33. A method according to ~~claim 29~~ wherein the targets are labeled.

34. A method according to ~~claim 29~~ wherein the control polynucleotides are from a kit which also contains the array.

35. A method according to claim 29 additionally comprising:
reading the array to obtain an image representing the amount of
polynucleotides which have bound to first and second set features;
evaluating locations of first features in the image using the locations of second
features in the image.
36. A method of fabricating a polynucleotide array, comprising:
enzymatically processing one or more polynucleotides to obtain a set of
polynucleotide molecules in respective fluid samples;
removing solid particles; and
ejecting drops of the fluid samples containing the polynucleotides onto a
substrate through an orifice of a pulse jet, which orifice has an area of less than 1 mm^2 .
37. A method according to claim 36 wherein the orifice has an area of less than
 $.01 \text{ mm}^2$.